DOCUMENT RESUME

ED 241 232 RC 014 653

AUTHOR Smith, Eldon D.; And Others
TITLE Technical Aid to the Rural Farm Poor: Can It Make Economic Sense? Agricultural Economics Extension No. 53.
INSTITUTION Kentucky Univ., Lexington. Agricultural Experiment Station.
PUB DATE Feb 84
NOTE 30p.; For related documents, see RC 014 651-654.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Adult Education; *Adult Farmer Education; *Change Strategies; Economic Change; *Economic Status; Educational Strategies; Extension Education; Farmers; Farm Management; *Low Income Groups; Rural Economics; Rural Education; *Rural Farm Residents; Taxes; Technical Assistance; *Welfare Recipients; Welfare Services
IDENTIFIERS Appalachia; Income Improvement; *Kentucky (East)

ABSTRACT

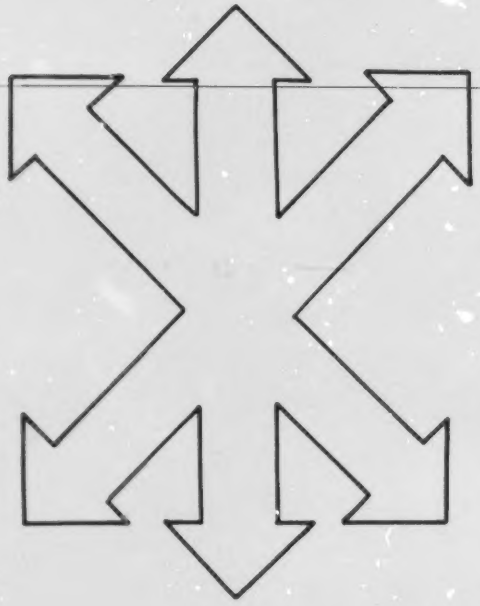
The paper explores whether the taxpaying public and limited-resource farm families who receive public welfare assistance to supplement meager farm incomes would be better off if some of these welfare funds were used to help the farmers help themselves by more efficient and profitable use of their farm resources. Data from an eastern Kentucky survey of 120 limited-resource farmers are cited: the farmers averaged 45 years of age, 7.2 years of schooling, and sold less than $10,000 worth of farm products in 1977. Other survey information cited indicates that such farmers infrequently participate in conventional extension programs or solicit assistance from extension offices, and that suitable technical assistance will have to be aimed specifically at these farmers. The potential of well-designed, low-cost technical assistance programs for improving efficiency of small-scale farmers is explored by making conservative assumptions about feasible productivity levels and farmer responses to such programs. Analysis supports earlier studies showing substantial opportunities for income improvement of these farms and indicates that with more efficient farming methods and small earnings from off-farm work, more than three-fifths of those now eligible for public assistance would become ineligible, cutting welfare assistance costs to less than one-third of present levels. (MH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED241232

Technical Aid to the Rural Farm Poor: Can It Make Economic Sense?

Eldon D. Smith
Harry H. Hall
Don Simon



"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Eldon D Smith
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
✓ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Agricultural Economics - Extension No. 53

February 1984

University of Kentucky • College of Agriculture • Cooperative Extension Service
Agriculture • Home Economics • 4-H • Development

RC014653

TECHNICAL AID TO THE RURAL FARM POOR:

CAN IT MAKE ECONOMIC SENSE?

By Eldon D. Smith, Harry H. Hall and Don Simon*

Department of Agricultural Economics
University of Kentucky, Agricultural
Experiment Station
Lexington, Kentucky 40546

*Professor, Associate Professor and former Research Assistant. Mr. Simon is now Economist, Department of Defense, Washington, D.C.

CONTENTS

Introduction 1

The Survey Area and Farms Surveyed 3

Major Questions and Objectives 3

Public Welfare Assistance Eligibility and Claimed Benefits 4

Potential Increases in Income From Farming 8

- Potential Farm Incomes For Moderate Management..... 8
- Calculated Potential and Actual Net Farm Income 9

Potential Welfare Assistance Cost Savings and Tax Revenue Increases 10

- Increased Tax Revenues From Increased Incomes..... 11
- Net Welfare Assistance Cost Savings From Increased Farming Efficiency..... 12
  - Present Situation 12
  - Full Achievement of Potential Income..... 12
  - Achievement of 50% of Potential Income Gain 13
  - Achievement of 25% of Potential Income Gain 13

Costs Versus Benefits of Intensive Technical Assistance 14

Will Welfare Assistance Programs Stifle Incentives? 17

Summary and Conclusions 18

Introduction

Thousands of American families who live on small farms are, by almost any standard, poor. Many depend almost entirely on their farms for a livelihood. Many others must supplement their farm income with public-welfare assistance. This report examines a seemingly simple question, "Would impoverished farm families and the taxpaying public both be better off if part of the money now spent for welfare support were used to improve the efficiency of small farms?" Put differently, would technical assistance aimed specifically at these farm families and designed to meet their needs be more cost-effective in alleviating their poverty than the present, conventional public welfare assistance such as Food Stamps, Aid to Families with Dependent Children and Unemployed Parents, Medicaid, etc.?

The basic idea this paper considers is not new. It is similar to the so-called "protected worksho." in which handicapped people are taught simple productive skills and do what they can to support themselves. Vocational rehabilitation and vocational retraining programs are also based on a similar philosophy -- that both the public and the trainees are better off if trainees provide as much of their own support as possible. The Cooperative Extension Service in several states has had small-scale special programs for limited-resource farmers. But these programs have had only limited financial support, and for the most part, have been viewed as ancillary to the main extension programs aimed at commercial farmers. Extension programs have never been aimed primarily at public welfare assistance; and agencies which administer public welfare programs have never aimed directly at increasing agricultural productivity. Therefore, the possibilities for dealing with problems of the rural farm poor by

upgrading their efficiency in farming have fallen through the meshes of our public policies and received little attention. There are no ongoing, comprehensive technical assistance programs aimed specifically at welfare-eligible farmers. For this reason, there is virtually no information available to evaluate the cost-effectiveness of technical assistance as a substitute for public welfare assistance. Consequently, these possibilities must be explored with indirect and incomplete information, as this paper does.

In 1978, large commercial farms (sales of $100,000 or more) accounted for the majority (62%) of U.S. agricultural production. At the same time, the majority of U.S. farms (64%) had gross sales of $20,000 or less and more than half (51%) had gross sales of $10,000 or less. In Kentucky in 1978, 64% of the farms sold less than $10,000 worth of farm products.[1] In many regions of the country, it is common for the operator and other family members, especially those operating small farms, to combine off-farm employment with farming. The combination often provides a satisfactory family income. For some, of course, farming is a secondary occupation or even a hobby; for others, it is an income supplement.

In several other regions, farm families are largely dependent on their small farms for a livelihood. Off-farm employment opportunities are limited, and many families are very poor. Several areas in Kentucky, especially in Appalachia, are among these chronically depressed farming regions. Farms are small, mostly steep and infertile, and opportunities for off-farm employment are limited. A majority of such farmers have limited educational backgrounds and would be ill-prepared by training, age and experience to compete for urban jobs if

they were to abandon farming. Such families are sometimes called the "locked-in" rural poverty class.

The Survey Area and Farms Surveyed

This paper relies mainly on data from a survey of 120 limited-resource, small farms and the families which operate them. These farms were located in four of the most depressed counties in Appalachian Kentucky--Owsley, Wolfe, Jackson and Lee. All sold less than $10,000 worth of farm products in 1977; all were operated by persons under 65 years old who were not physically or mentally disabled; and none of the farmers had worked more than 100 days off the farm. Operators averaged 45 years of age and had an average of 7.2 years of schooling. They averaged only 35 days of off-farm employment, including work on other farms. The farm families averaged 4.0 people per household, owned farms with an average of 28 acres of cropland, about half of which was cropped and half devoted to permanent pasture. Tobacco was a major source of cash income, and these farmers owned an average of 1,324 pounds of tobacco marketing quota. They sharecropped or cash rented an additional 3,400 pounds. Personal cash savings were $660 on the average at the time of the survey.

Major Questions and Objectives

In exploring the relative cost-effectiveness of welfare assistance and technical assistance to improve farming efficiency, we attempt to answer several more specific questions. What proportion of these families were eligible for some type of public welfare assistance? What proportion actually claimed the benefits for which they were eligible? How much farm and off-farm family income did they receive? And how much public welfare assistance did they receive?

we attempt to determine how much the public welfare assistance received by these families could be reduced by effective technical assistance. This, of course, requires some estimate of what their net incomes from farming could be if their farms were operated efficiently. It also requires some estimate of how much more efficient these farmers would be if they were provided suitable technical assistance. Suitable technical assistance, we suspect, will have to be aimed specifically at these under-schooled, middle-aged, small-scale farm operators. (An earlier study shows that they rarely contact their county Cooperative Extension Service offices.) The traditional extension media and service to those who request it has not reached many small-farm operators.

How much additional tax revenue would be created if these farmers earned and spent more income from their farming operations is also pertinent. Would the combined public welfare cost-savings and added tax revenues exceed the costs of the assistance required to upgrade their efficiency in farming? Put differently, would these gains be commensurate with the cost of providing effective types of technical assistance? These questions will be examined in the remainder of this paper.

Public Welfare Assistance Eligibility and Claimed Benefits

Information on public welfare assistance benefits received by the 120 farm families was collected from welfare agencies. In addition, data on farm and nonfarm income, family composition, personal assets and other pertinent information were checked against the legal requirements for eligibility. From this, the amounts of benefits from all programs for which they had been eligible in 1977 were calculated.

These calculations were made for each of the 120 families surveyed.

Sixty-three of the surveyed families received some form of welfare assistance in 1977 (Table 1). The total direct cost, that is, the total dollar benefits received by these 63 families was $133,640. Of course, the total public cost, including administration and tax collection, would have been somewhat greater. However, we have no data on indirect or administrative costs. Those families collecting benefits averaged $2,122 in 1977 (about $3,300 at 1982 consumer prices).

While only 63 families actually received benefits, 26 others were eligible for assistance but did not claim it. Eighty-nine of the farm families surveyed (about three-fourths) were eligible for some benefits (Table 2). Those with unclaimed benefits could have collected on the average about $769. This probably means that those with unclaimed benefits were less impoverished than those who did. If they correctly reported their income to our survey enumerators, they either did not know they were eligible or for some other reason they chose not to claim some of these benefits.

Families who received benefits had earned income of only $1,013 per family, while those with unclaimed benefits earned $5,300 per family. This suggests that, in most cases, these low income farm families choose not to live on public assistance if they can avoid it without severe privation. Without these benefits, recipients would have been reduced to per capita incomes approaching those found in several less-developed nations of the world. Those who lived without public assistance on $5,300 per year certainly did not live luxuriously. Yet they did not claim all the benefits to which they were officially qualified.

TABLE 1

AVERAGE PUBLIC WELFARE ASSISTANCE BENEFITS
RECEIVED BY LIMITED-RESOURCE FARM FAMILIES, 1977

	Food Stamps	Medicaid	AFDC[a]	SSI[a]	COE[a]	Total Programs[a]
Welfare recipient families						
Number of families	53	24	5	10	10	63
Percent of all families	44%	20%	4%	8%	8%	53%
Average annual program benefits per recipient family	$1,527	$240	$2,126	$2,074	$1,558	$2,122
Average annual earned income of individual program participants	$1,018	$960	$625	$1,296	$1,198	$1,013
All farm families[c]						
Average annual benefits	$675	$48	$89	$173	$130	$1,114
Total public cost	$80,930	$5,760	$10,630	$20,740	$15,580	$133,640

a. Individual program participation levels do not sum to total; recipients may participate in more than one program. AFDC is Aid to Families with Dependent Children and Unemployed Parents. SSI is Supplemental Security Income; COE is Comprehensive Opportunity Employment.

b. Average annual earned non-transfer income is net family income of sample families receiving the types of of assistance shown.

c. Sample consists of 120 limited-resource farm families.

d. Ratio based on 1977 average earned family income of $3,928 for sample farms.

TABLE 2

Social Security (FICA), Income and Sales Tax Contributions and Public Assistance Benefits of 120 Appalachian Farm Families Under Various Levels of Management, February, 1977.

Welfare Program Benefits and/or Tax Revenue Increases[b]	Management Level 1. Farm Income Under Present Level Management	2. Potential Income Under Moderately Good Management	3. "Fair" Management 50% of Potential Income Gains[b]	4. Slightly Improved Management 25% of Potential Income Gains[b]
1. Tax Contributions (F.I.C.A. + Sales + Income Taxes)[c]	$ 62,000	$196,000	$123,000	$ 94,000
2. Actual Benefits:				
a. Present Participation	$134,000	--	--	--
b. No. of Beneficiaries	63	--	--	--
3. Benefit Eligibility:				
a. Total amount	$154,000	$ 51,000	$ 64,000	$ 97,000
b. No. of Farmers Eligible	89	35	40	53
4. Net Tax Contribution in Excess of:				
a. Actual Benefits	-$ 72,000	--	--	--
b. Benefit Eligibility	-$ 92,000	+$145,000	+$ 59,000	-$ 3,000

[a] Estimates rounded to $1,000's

[b] Example: If present income = $2500 and potential income = $7500, the income level assumed = $5,000 in Column 3 and $3,750 in Column 4.

[c] Excludes ad valorem property taxes, inheritance, tobacco, gasoline, and alcoholic beverage taxes.

Potential Increases in Income From Farming

To assess the possible cost savings from programs to increase efficiency and income from farming, potential increases in income must be estimated. Some farmers have very little land and few other resources. It is unrealistic to expect that such farms could increase farm incomes greatly. Few would become self-sufficient and ineligible for any welfare benefits. It is important to know what proportion could, with help, improve their farm incomes enough to support themselves, or at least provide most of their own family support. Therefore, each farm with its own land, labor, personal savings, and tobacco marketing quota was separately evaluated to determine potential incomes from more efficient farming.

Potential Farm Incomes For Moderate Management

For each class of land, yields which could reasonably be obtained from each crop with moderate quality management were estimated. Local and state extension specialists estimated these yields based on local experience and technical experiments. A further check of farm records showed that in all cases, some farmers in the survey reported yields as high as or higher than the extension estimates. Achievable performances for animal enterprises (calf crop, pigs saved per litter, rates of gain for feeder calves, and the like) were also estimated and checked against survey records. Standard prices both for products sold and for products purchased were applied to all farms. For each farm, amounts of land, available family labor, tobacco marketing quota, available savings and a quantity of borrowed capital judged to be reasonable were also used in computing the most profitable combination of enterprises.[2] Potential net farm income was simply the

computed net return for the most profitable combination of enterprises for the farm.

These potential incomes then represent the maximum which each farm could obtain from the farm under "normal" prices. "Normal" prices were the annual average prices received in 1977 except for feeder calf prices. Feeder calf prices were adjusted to make them more consistent with long term trends. The same prices were applied in computing both present and potential net farm income.

Calculated Potential and Actual Net Farm Income

The potential incomes indicate a large range in farming efficiency among these small farms. The least efficient 24 farms (20 percent of the sample) achieved actual net incomes averaging only $79 (four percent of potential). Some actually had small operating losses. By contrast, the most efficient 24 farms averaged 71 percent of their potential, about $3,200. For the entire 120 farms, average net farm income was $1,938, roughly one-fourth of their potential net income ($7,261).

The potential gains in net farm income result mainly from improving practices on existing enterprises, growing as much tobacco as possible, growing cucumbers and bell peppers for market, and growing more feeder pigs. However, as one might expect, this varied greatly from farm to farm, depending on available resources, present management, and present enterprises. But the opportunities for increases in income are substantial. If all farms were brought up to the average for the most efficient 24 farms, $1400 would be added to family income, about two-thirds as much as the direct welfare assistance benefits these families received.

Potential Welfare Assistance Cost Savings and Tax Revenue Increases

The amounts of public welfare assistance benefits for which a family is eligible depends on a formula or schedule that is applied in each program. Food stamps must be purchased at some fraction of their exchange value. That fraction is determined by income, costs of rent and other household expenses, and by the number of persons in the household. Assistance to Families with Dependent Children (AFDC) is mainly available to those without parental support due to death, disability of parents, or abandonment by a parent responsible for support. AFDC families automatically qualify for Food Stamps and Medicaid. Medicaid is mainly available to families who for unemployment, disability, or other reasons, are judged unable to provide medical care. Below specified property ownership and income limits, families become eligible for such benefits on a "categorical" basis. That is, all costs of treatment are paid by the government to the physician, hospital or clinic.

Supplemental Security Income (SSI) is available to aged, disabled or mentally deficient persons who for these reasons cannot work. All those eligible for SSI are automatically eligible for Food Stamps, Medicaid and, usually, some state supplied benefits. Community Opportunity Employment (COE) provides employment in community projects for handicapped, minorities, unemployed persons 15-20 years old, and long term unemployed adults 45 years of age and over. Work is designed to provide in-service training for skill development with the aim of making the recipient employable in private business.

The complex eligibility rules for these programs make it

necessary to compute, family-by-family, the benefits for which they qualify. This was done initially for each family with their reported 1977 income. Benefits were then estimated for the potential incomes. The computations were based on regulations in effect in 1978 and would not hold exactly now. They are illustrative and only generally indicative of possible benefits.

Because there is no way to determine exactly how completely income potentials of individual farms would be exploited under an intensive technical assistance program, the benefits for which they would be eligible were recomputed at two somewhat more conservative farming efficiency levels. These levels were equal to 50% of the difference between current and potential income, and 25% of the difference between current and potential income. Welfare cost savings under the two alternative (lower) levels of management were computed for each family.

Increased Tax Revenues from Increased Incomes

As family incomes increase there is increased spending for consumer goods that are subject to sales and excise taxes. In addition, federal income taxes and state income taxes are paid when net income exceeds authorized deductions and allowances for such things as medical expenses. In estimating the increased tax revenue which would result from improved efficiency in farming, reported farm and nonfarm incomes were computed and the so-called short form procedures outlined on IRS Form 1040-A were used to compute federal income tax at the reported levels of income. The same procedures were also used to compute taxes on the improved incomes, both the 25% improvement and the 50% improvement.

Net Welfare Assistance Cost Savings from Increased Farming Efficiency

Because police protection, streets and roads, fire protection, schools and other services are provided to people without charge, those who own large amounts of property and have large incomes always contribute to the cost of public services provided to the lower-income groups. Families who have very small farms and limited incomes are unlikely to contribute enough tax revenue to support their share of the cost of public services, even if their earned incomes were increased several fold. This is especially true of residents of farming areas where school bus transportation and road maintenance costs per family are relatively high. It is unrealistic to expect otherwise. However, in combination, reduced public welfare assistance costs and increased tax contributions from increased farm income could improve the balance between costs and revenues to state, federal and local governments.

Present Situation: The combined income, excise (sales) and FICA (Social Security) taxes paid by the 120 sample farmers was $62,000, or about $500 per family (Table 2, Column 1). Aggregate public assistance benefits received were about $134,000, more than twice as much. An additional $20,000 of benefits for which families were eligible were not claimed, and would have increased welfare assistance costs to $154,000, to an average of about $1,280 per family. Taxes paid by them were less than 40 percent of welfare assistance benefits which could have been claimed.

Full Achievement of "Potential" Income: By increasing incomes to the "potential" levels, tax revenues would increase to more than three

times the present levels, about $1,600 per family, while welfare costs would decrease to about one-third the present level, or an average of $425 per family (Column 2, Table 2). Ad valorem real estate and personal property taxes were not counted and were assumed to be constant. Tax contributions would be almost four times as great as welfare assistance benefits for which these families are eligible. The combined improvement in the welfare cost-revenue balance to federal, state and local government would be more than $237,000 ($92,000 plus $145,000) if all benefits were claimed (Col .2, Table 2). This is equal to $1,975 per family.

Achievement of 50 percent of Potential Income Gain: With lower response to technical assistance programs, incomes would increase by smaller amounts. In turn, income and other tax revenues paid by farm families would be lower, and public welfare assisance benefits for which they would be eligible would be higher than if farms were more efficiently managed. If only half of the potential increases in farm income were achieved, tax revenue would be about $73,000 less than under full potential, and welfare benefits would increase slightly, $13,000 total for 120 farms or about $108 per farm. The increase is small because many families would still not qualify for benefits. Only five more families would qualify for any benefits. Tax revenues paid would exceed welfare benefits received by about $59,000. The balance between tax revenues and welfare benefits would be better by $151,000 ($92,000 plus $59,000) or $1,260 per family on average.

Achievement of 25 Percent of Potential Income Gain: If response to technical assistance is limited, income gains will be still smaller. A poorly designed program or farmers either unable or unwilling to

learn better farming methods could result in smaller income gains. If farmers achieved only 25 percent of the potential improvement, increased tax contributions would be small ($32,000; $207 per family) and cost-savings on public welfare would be reduced. Eligibility for public assistance benefits would be reduced by only $57,000 below the present $154,000. Together, the improvement in the balance of revenues and welfare costs would be $89,000, or about $740 per family.

Costs Versus Benefits of Intensive Technical Assistance

Costs per farm of any technical assistance program will depend on the number of farms served by each technical assistance person, the technical qualifications and, hence, salary of the person providing that service, the amount and quality of supporting work by specialists, and other factors. The number of years of intensive participation by each farmer and the extent to which there are spread effects (that is, other farmers learning from program participants) are also important.

The most highly organized extension program for limited resource farmers in the United States has been in Missouri. It has had a large number of participants per technician and costs per farm have been accordingly low--$220 per farmer (1977 dollars). With fewer farms per technician, Kentucky had a combined administrative and direct costs of approximately $400 per farm in 1977. However, salaries were low and the turnover among technicians was high. Specialist support has been limited except in a small number of counties where the program was supported by the Tennessee Valley Authority.

Interviews with county extension personnel in Kentucky counties which have had small farm programs strongly suggest that higher

salaries, more in-service training, and greater specialist support will be required to develop a program with significant benefits. Budget estimates assuming a technician's salary of $10,000 per year suggest that a successful program will require at least $600-$700 per farm (1977 basis). Our field observations suggest that these small farms will require at least five years to develop managerial skills sufficient to sustain reasonable net incomes.

Estimating exact costs and benefits of technical assistance is impossible without information on how farmers will respond to such assistance. This would require a direct experiment. However, it will be illustrative to compute these under low assumed levels of response and high costs per farm family. In this calculation we will assume total technical assistance program costs of $700 per farmer continuing for a five-year period and ultimate achievement of only 25 percent of potential improvements under moderately good management. However, the benefits of the program will not be immediate. We will assume that benefits build up over a five-year period to their maximum level. However, they will continue from a present average age of 47 years until retirement at age 65, or 17 years. Since program costs are in the early years and benefits are spread over 17 years, costs and benefits for future years are discounted by a rate of interest which would be appropriate if prices were stable, 6.0%.

The results of this analysis are shown in Table 3. If only welfare cost reductions and additional taxes paid as a result of increased net farm income are counted, benefits are still 3.67 times as great as program costs. That is, over a period of 17 years, taxpayers would eventually avoid welfare costs and increase tax

TABLE 3

Projected Benefits and Costs of Small Farm Technical Assistance Programs With "High" Costs Per Farm And "Low" Levels of Productivity Increases

Public Sector Benefits and Costs	YEAR 1	2	3	4	5	6-17 (per year)	Sum of Values Year 1-17 Discounted at 3.0% (Present Value)
1. Program Costs Per Participating Farm	$700	$700	$700	$700	$700	None	3496
2. Excise and Income Tax Contributions Per Participating Farm	$53	$107	$160	$213	$267	$267	----
3. Reductions in Welfare Assistance Elegibility	$119	$238	$356	$475	$594	$594	----
4. Total Public Sector Benefits Per Farm[1]	$172	$345	$516	$688	$861	$861	12,845
							Public Sector Benefit-Cost Ratio (Line 4 ÷ Line 1) = 3.67
5. Total Public and Private Sector Benefits and Costs	$700	$700	$700	$700	$700	None	$3496
6. Total Increase in Net Farm Income Per Farm[1]	$266	$532	$798	$1064	$1330	$1330	$19843
7. Net Benefits (6-5)	-$434	-$168	+$98	+$364	+$630	+$1330	
							Internal Rate of Return = 61%
							Benefit-Cost Ratio = 1: 5.7

[1] Assumes that 25% of estimated potential productivity increases are achieved over a five year period of program operation in equal annual increments and that this level is maintained thereafter for an average of 12 additional years, i.e., until the average recipient reaches age 65. Tax contributions in public sector analysis assume no secondary increases in community income resulting from increased farmer and farm family expenditure, hence no sales and income taxes except those paid by farmers or taxed on direct farm family transactions.

revenues from these farmers by more than three and a half times the cost of the program, even when future benefits and costs are discounted by a reasonable interest rate. If this modest increase in incomes were achieved, as some small-scale, informal experiments in several states suggest is possible, it would be a sensible, economically prudent investment for the tax-paying public.

In actuality, more efficient use of resources benefits consumers generally. In a competitive industry such as agriculture, the increases in efficiency achieved by a program such as this are approximately equal to the increases in net incomes of the participating farmers, less program costs. The economic benefit to cost ratio measures the productivity of the public investment. In this case, benefits exceed costs by a ratio of 5.7 to 1.0. If we compute, instead, the rate of return on public investment, the so-called internal rate of return, it amounts to more than 60 percent with no allowance for inflation.

The performance levels or benefits which we assume are quite conservative. If only 8.3 percent of potential benefits under moderate quality management were achieved by the end of the five year period, the level of performance would still rate as a very satisfactory public investment with a benefit to cost ratio of 1.9 to 1.0, well above the ratio for most public resource development projects.

Will Welfare Assistance Programs Stifle Incentives?

Political campaign rhetoric often includes some reference to the idea that welfare programs encourage indolence and dependence on the government rather than self sufficiency. Several studies have tried to determine to what extent this is true. A national program to

provide welfare payments on a sliding scale, the so-called "Negative Income Tax Experiment", was set up to measure effects of this kind. Findings from various studies of the experiment suggest that, in general, disincentives were relatively unimportant.

Of the limited resource farmers studied in Appalachian Kentucky, about half were receiving some type of public welfare assitance. As shown in Table 4, there is no indication that public welfare recipients were doing a less efficient job of farming than those who received no benefits. While those who received welfare and those who did not had almost exactly the same net farm income, recipients were actually achieving a greater proportion of their potential net farm income than those who received none. Therefore, the existence of welfare programs is not likely to seriously affect the utilization of good, relevant technical assistance to improve farming efficiency.

Summary and Conclusions

Many families who depend primarily for their livelihood on small, limited-resource farms receive public welfare assistance to supplement their meager farm incomes. About half of such families in a four-county area of Appalachian Kentucky received benefits. Another 22 percent were eligible for benefits but did not claim them. Average annual benefits received by the families who claimed them were more than $2,200 in 1977. The question which we explore is whether these families and the taxpaying public would be better off if at least part of the funds used for welfare assistance was utilized to help them help themselves by more efficient and profitable use of their farm resources.

Reliable experimental data are not available regarding the levels

TABLE 4

Comparative Management Performance of Public Welfare Recipients and Non-Recipients

Means	Recipients	Non-Recipients
Observed Net Farm Income (Average)	$1931	$1945
Potential Net Farm Income[a] (Average)	$5928	$8734
Number of Farms	64	56
Percentage of Potential Net Farm Income Realized	33%	22%

[a]Potential Net farm income is the linear-programmed solution for available resources under conditions of improved technology and management. Labor utilized in off-farm work by family members is not included in the available labor supply in computing potential net farm income.

of efficiency these small-scale farmers can achieve with well-designed (but low cost) technical assistance. Therefore, we explore the potentials of such programs by simply making conservative assumptions about feasible productivity levels and about farmer responses to such a program. These assumed responses have been modified over a wide range so that differing judgments can be made and corresponding levels of benefits can be selected. These can be compared with program costs to assess the potential value of such programs in alleviating poverty and reducing welfare assistance costs.

While the opportunities for improving incomes of these farms are variable, our analysis supports earlier studies that indicate substantial opportunities for improvement. With more efficient farming methods and small earnings from off-farm work, more than three-fifths of those now eligible for public assistance would become ineligible, cutting welfare assistance costs to less than one-third of present levels. Even with rather high technical assistance costs per farm, public benefits in welfare cost savings and increased tax revenue would be very favorable relative to program costs. This would be true even if the farms involved achieved only a small proportion of the potential increase in net farm income and if other farmers did not follow the example of those who made profitable changes in farm operations.

Information from this and other surveys shows that operators of limited resource farms infrequently participate in conventional extension programs or solicit assistance from the local agricultural extension offices. More intensive, aggressive and personalized approaches appear to be required. Several informal experiments in this country

and elsewhere suggest that some approach which utilizes para-professional aides may have potential. The little organized experimentation with small farm programs so far provides no clear indications of the most effective techniques. This, in itself, suggests that relatively high quality personnel, paid sufficient salaries to insure reasonable program continuity, will be important to the success of any program of this type. Support by competent specialists who recognize the problems confronted by limited resource farmers as well as the differences in experience and education between these small farm operators and operators of larger commercial farms will be especially important. The innovativeness necessary to program success will probably not come from underpaid, under-supported, or under-qualified personnel committed to conventional approaches. The problem is a challenging one, but our information suggests that the value to the public of effective special programs for these farms will be high, the potential returns on public investment far exceeding the more conventional investments in public programs.

Footnotes

[1]This figure does not include very small units selling less than $2,500 worth of farm products which in the most recent Census of Agriculture were not for most purposes considered to be true farms.

[2]It was assumed that borrowing would be limited to an amount which would yield for a small additional investment 10 percent more than the 6 percent interest cost. If profitable, the computing scheme allowed for share rental of tobacco land and quota of twice the individual farm's quota. Leasing of tobacco quota from other farmers up to 25 percent of the farm's quota was also allowed if profitable. Further computing details can be found in Mr. Simon's M.S. thesis, cited in our references. Labor and machine time requirements were obtained from other surveys.

References

Comer, Sammy, and Roger C. Woodworth. Improving Incomes of Limited Resource Farms in South Central Tennessee. Tennessee State Univ. School of Agr. and home Econ. Bul. 36, Nashville, 1976.

Hall, Harry, Eldon D. Smith, and Angelos Pagoulatos. Public Economics of the Small Farm. Dept. of Agr. Econ. Staff Paper 40 (revised), University of Kentucky, Lexington, July 1977.

Huffman, Wallace E. "Discussion." Amer. J. Agr. Econ. 59 (1977): 874-76.

Kerachsky, Stuart H. "Labor Supply Decisions of Farm Families." Amer. J. Agr. Econ. 59 (1977): 869-73.

Ladewig, Howard W., and Vance Edmondson. The Effectiveness of Nonprofessionals in Extension Education for Low Income Farmers. Texas Agr. Exp. Sta. Bul. B-1122, Texas A. & M. Univ., College Station, 1972.

Myer, Gordon L. "The Missouri Small Farm Program: An Analytical Evaluation." Ph.D. thesis, University of Missouri, Columbia, 1976.

Orden, David, Steven T. Buccola, and Patricia Klobus Edwards. Cooperative Extension Small-Farm Programs in the South: An Inventory and Evaluation. Research Div. Bul. 153, Virginia Polytechnic Institute and State Univ., Blacksburg, April 1980.

Primus, Wendell, E. "Work and Income." Amer. J. Agr. Econ. 59 (1977): 864-68.